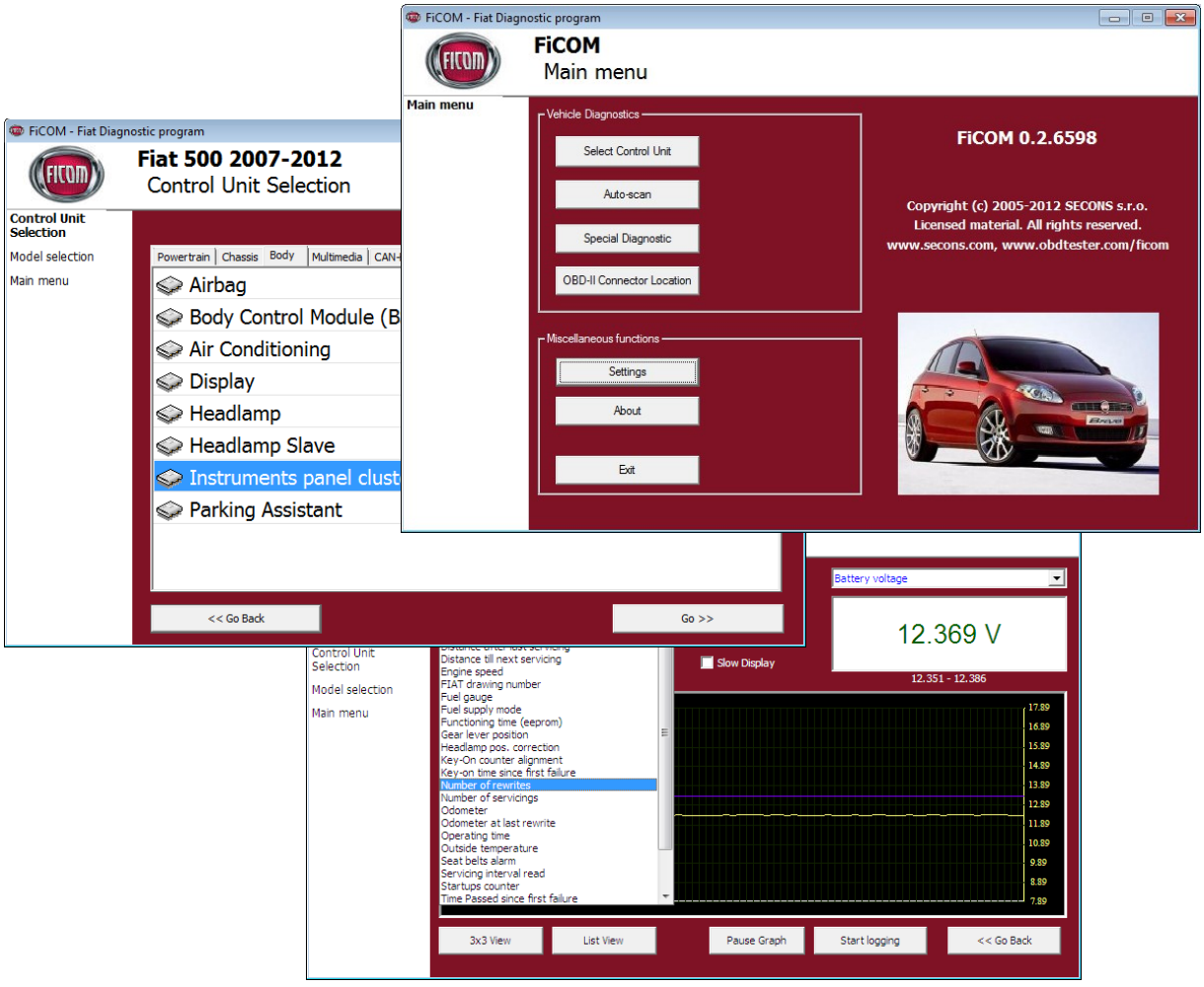
FiCOM

User manual

http://www.obdtester.com/ficom



Copyright © 2004 – 2014 SECONS s.r.o., http://www.secons.com/
All rights reserved.

SECONS Ltd. is not connected with *Fiat* S.p.A in any way.

Please read carefully this user manual before using the FiCOM application.

SECONS Ltd. is not liable for damages caused by using the FiCOM.

Before using the software please read license agreement.

CE

Abarth, Fiat, Lancia, Alfa Romeo, Innocenti, Maserati and Iveco are registered trademarks of Fiat Group or other owners.

Peugeot and Citroen are registered trademarks of Peugeot Group or other owners.

Ford is registered trademark of Ford Motor Company or other owners.

All trademarks used in this documentation or programs or any other material are used nominatively for identification purposes only and may be property of their respective owners.

Table of Contents

1 Introduction....4
1.1 Key features....4
1.2 Software updates....4
2 FiCOM software and driver installation....5
2.1 Microsoft Windows operating System....5
2.2 Microsoft Windows 8 driver installation....6
2.3 GNU/Linux System....7
2.3.1 Requirements....7
2.3.2 Setting up devices....7
2.3.3 Installation....7
3 Diagnostic connectors used in Fiat vehicles....8
3.1 3-pin....8
3.2 OBD-II....8
4 Information about Fiat control units....9
4.1 Fiat ECU naming terminology....9
4.2 Communication protocols....9
4.3 Diagnostics of Fiat Scudo, Fiat Ulysse, Lancia Z, Lancia Phedra....9
5 Preparation to diagnose....9
6 FiCOM main menu....10
6.1 Select Control Unit....10
6.2 Auto-scan....11
6.3 OBD-II Connector Location....11
6.4 Settings....12
6.5 About....14
7 Diagnostic functions....15
7.1 Unrecognized Control Unit....16
7.2 Control Unit Identification....19
7.3 Read fault code memory....20
7.4 Clear Fault Codes....20
7.5 Freeze Frame....21
7.6 Measured values....22
7.6.1 Graph display....22
7.6.2 Display 3x3....22
7.6.3 Display list....22
7.6.4 Save to log....22
7.7 Actuators activation....23
7.8 ECU Programming/Coding functions....24
7.9 ECU Configuration....25
8 Reporting bugs and improvement requests....26
8.1 How to create Debug Log....26
8.2 How to create ecu Snapshot....27
9 Known problems....28

1 Introduction

Thank you for purchasing the FiCOM diagnostic interface and software. FiCOM is professional tool for diagnostics of Fiat vehicles. Please read carefully this User Manual before using the product.

We hope you'll find our products useful. In case you have any questions, problems or feedback please contact as at support@secons.com. We're here to help!

1.1 Key features

- Support for wide range of ECUs and models
- Fully multiplexed all-in-one smart USB2.0 interface
- Wide range of communication protocols and buses covered: KW71, IAW, KWP2000, FIAT9141, ISO15765, UDS, ...
- Automatic ECU recognition
- Automatic vehicle scan
- ECU Identification
- Fault code (DTC) reading
- Fault freeze frame reading
- Fault code clearing
- Measured values / live data
- Live data recording
- Diagnostic protocol printing
- Actuator tests
- Control unit coding such as:
    - Immobilizer key matching
    - Injector coding
    - Parameters resetting

The FiCOM system works with Fiat vehicles. (It works as well with Fiat subsidiaries vehicles such as Ford Ka 2008+, Peugeot Boxer, etc.) The rule of thumb is: tasks related to fault code memory and identification are reliable everywhere, but measured values and other functions may not be fully supported.

1.2 Software updates

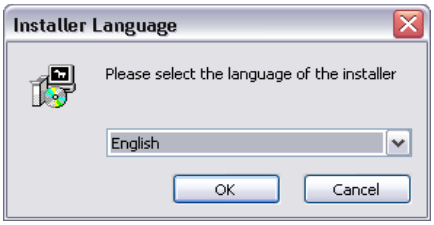
Updates of purchased software version are available for free download at www.obdtester.com/downloads. User name = serial number of FiCOM diagnostic interface. Password leave blank. The serial number can be found on a silver label of the interface or in settings of FiCOM after performing “Test interface”. We recommend you to install updated version at least once a month, because updates provide support for new ECUs and fix various issues.

We recommend you to update firmware in diagnostic interface by clicking on *Settings* → *Upgrade firmware* every time you update the software.

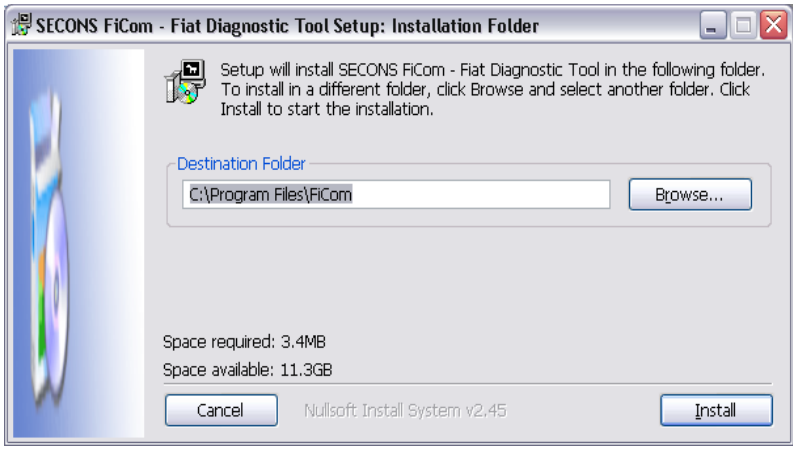
2 FiCOM software and driver installation

2.1 Microsoft Windows operating System

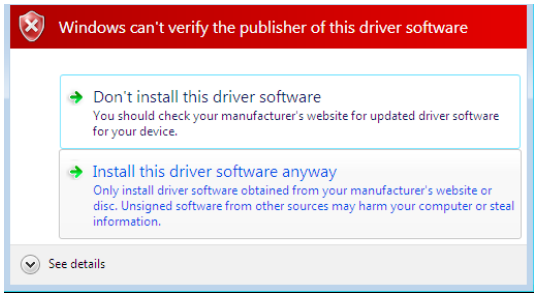
1. Insert FiCOM installation CD to your CD-ROM drive
2. Run installation file FiComSetup.exe
3. Choose language for the installer



4. Choose your destination folder for the FiCOM and click on *Install* button and after successful installation click on *Close* button.


SECONS FiCom - Fiat Diagnostic Tool Setup: Installation Folder
Setup will install SECONS FiCom - Fiat Diagnostic Tool in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\FiCom
Browse...
Space required: 3.4MB
Space available: 11.3GB
Cancel
Nullsoft Install System v2,45
Install

FiCOM drivers are automatically updated during the FiCOM installation. When prompted to install „unsigned“ drivers, click on *Install this driver software anyway* (Microsoft® Windows® 7) or *Continue Anyway* (Microsoft® Windows® XP).


Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

Hardware Installation
The software you are installing for this hardware:
ELM-USB Interface
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Microsoft® Windows® will automatically install drivers when you plug-in the FiCOM to USB port. Driver installation isn't required for operation on GNU/Linux system.

2.2 Microsoft Windows 8 driver installation

In case of problem with installing drivers on Windows 8, please follow these steps:

1. Press Windows Key + R
2. In the window that appears, type: “shutdown.exe /r /o /f /t 00”
3. Press "OK" button
4. The System will restart to a "Choose an option" screen
5. Select "Troubleshoot" from "Choose an option" screen
6. Select "Advanced options" from "Troubleshoot" screen
7. Select "Windows Startup Settings" from "Advanced options" screen
8. Click on "Restart" button
9. System will restart to "Advanced Boot Options" screen
10. Select "Disable Driver Signature Enforcement" (press number on keyboard for option shown on screen)
11. Once the system starts, install the diagnostic interface drivers as you would on Windows 7

Windows Vista & 7 required signed all .sys files (we use usbser.sys shipped by Microsoft with valid digital signature). Final version of Windows 8 requires also signed .inf file (which is not in our case). The above procedure helps to override unsigned .inf file. Once driver is installed, the program will work properly.

2.3 GNU/Linux System

Our diagnostic application are tested to work under Linux. The applications can be run under Linux, BSD or Apple OS/X on Intel x86 using Wine environment. The installer and applications perform fully automated installation under these operating system.

2.3.1 Requirements

- Linux 2.6.x with USB support (or FreeBSD)
- USB CDC Driver
- Wine 1.0.1

Recent Debian Linux or Ubuntu meet the above requirements.

2.3.2 Setting up devices

Driver installation isn't required for operation on GNU/Linux system. Diagnostic applications require access to /dev/ttyACMx devices from Wine environment. This can be set-up very easily using these commands:

```
ln -s /dev/ttyACM0 ~/.wine/dosdevices/com5
ln -s /dev/ttyACM1 ~/.wine/dosdevices/com6
ln -s /dev/ttyACM2 ~/.wine/dosdevices/com7
ln -s /dev/ttyACM3 ~/.wine/dosdevices/com8
```

Diagnostic interface should be then visible from the FiCOM diagnostic application.

2.3.3 Installation

Programs can be installed by launching setup .exe file using wine, e.g. `wine FiCOMSetup.exe`.

You can download the latest version of FiCOM at www.obdtester.com/downloads.

3 Diagnostic connectors used in Fiat vehicles

Location of OBD2, OBD1 or 3pin diagnostic connectors is available in DLC location database available from the FiCOM main menu.

3.1 3-pin

Some older vehicles (up to 2003) may use 3pin connectors. Every system (Injection, ABS, Airbag, …) use separate connector. Special OBD2 to 3pin reduction is available for such diagnosis.

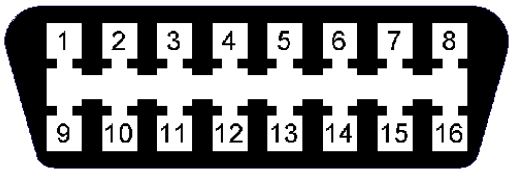
The 3pin reduction cable has to be connected to battery positive voltage in order to work with FiCOM (the 3pin connector does not provide battery voltage).

Pin	Description
A	L-Line ISO9141
B	Chassis (ground)
C	K-Line ISO9141

3.2 OBD-II

Standard OBD2 connector is used since 1997 to present (please note that some models manufactured after 1997 still may use 3pin connector).

FT CAN High ISO9141 K Line	1	9	FT CAN Low ISO9141 K Line
-	2	10	-
ISO9141 K Line	3	11	ISO9141 K Line
Ground (GND)	4	12	ISO9141 K Line
Signal ground (GND)	5	13	ISO9141 K Line
HS CAN High	6	14	HS CAN Low
ISO9141 K Line	7	15	ISO9141 L-Line
ISO9141 K Line	8	16	Battery voltage



4 Information about Fiat control units

4.1 Fiat ECU naming terminology

Injection – Engine ECU control unit

Code – immobilizer control unit

Body – Body Computer (central electronics)

4.2 Communication protocols

Protocol	Diagnostic bus	Production
KW71 (Bosch)	ISO9141	1991-2001
Marelli IAW	Marelli	1991-2001
KWP2000,	ISO9141	1996 – 2011
FIAT9141	ISO9141	1996 - 2007
ISO15765	CAN-BUS (ISO 11898)	2003 - present
UDS (ISO 14229)	CAN-BUS (ISO 11898)	2005 – present

4.3 Diagnostics of Fiat Scudo, Fiat Ulysse, Lancia Z, Lancia Phedra

Fiat Scudo, Fiat Ulysse, Lancia Z, Lancia Phedra are not supported by FiCOM. Special diagnostic software for Peugeot/Citroen (PSA) must be used, such is PSA-COM (www.obdtester.com/psacom) Some ECU's in Fiat Ducato may also require diagnostics PSA.

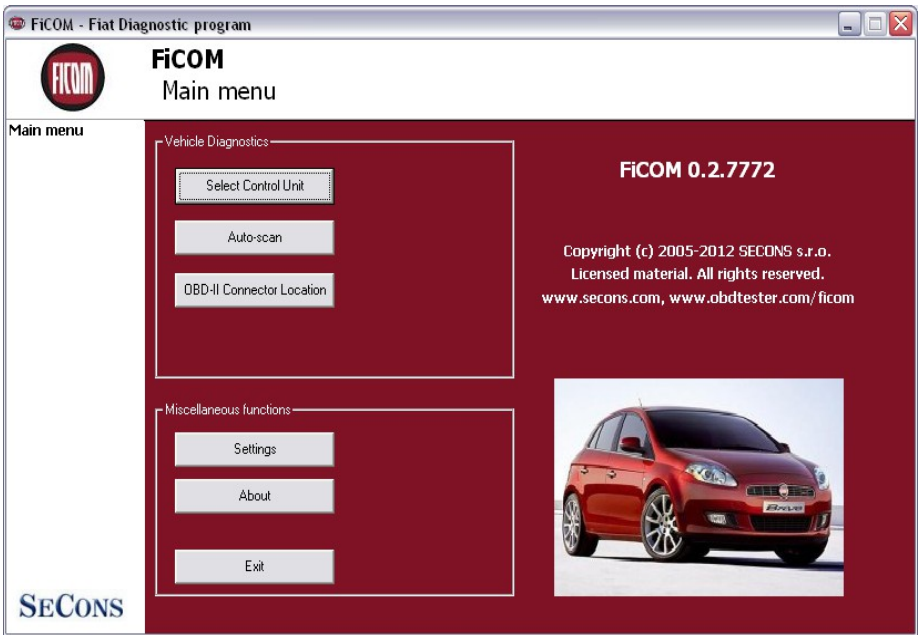
Fiat Sedici is based on Suzuki platform and is not supported.

5 Preparation to diagnose

Before starting diagnosis, make sure that car ignition is turned ON. Connect your FiCOM diagnostic interface to PC / laptop via USB. Interface test in settings of FiCOM must pass successfully (more information in chapter Settings). Connect your FiCOM diagnostic interface to OBD-II connector in the vehicle. You can find the OBD-II connector using FiCOM OBD-II Connector Location image database.

6 FiCOM main menu

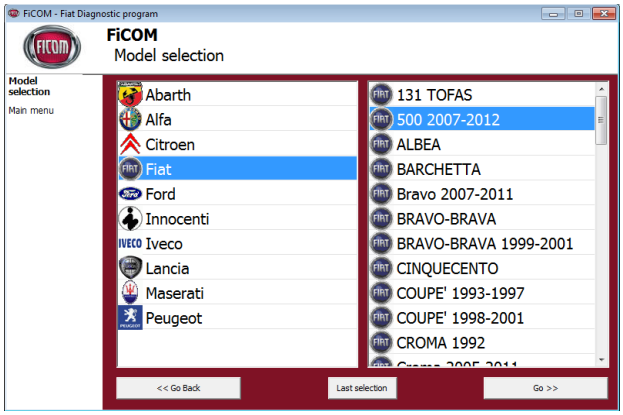
FiCOM main menu is divided into two parts → Vehicle diagnostics and Miscellaneous functions. Descriptions of single functions are given below.

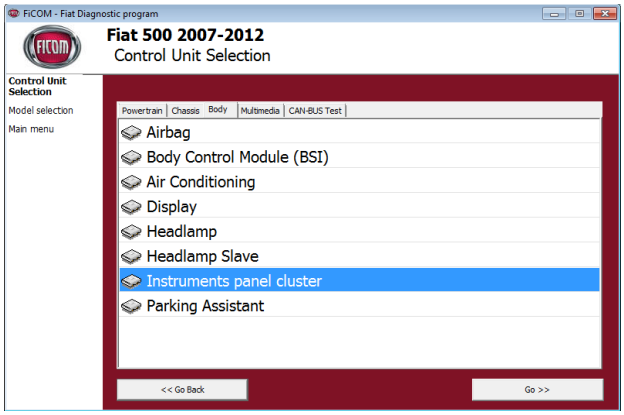


6.1 Select Control Unit

Using this function you can connect to a specific control unit you wish to diagnose. You can choose the control unit from a complete list of control units after exact selection of tested vehicle.

All control units present in tested vehicle can be detected by Auto-scan function.



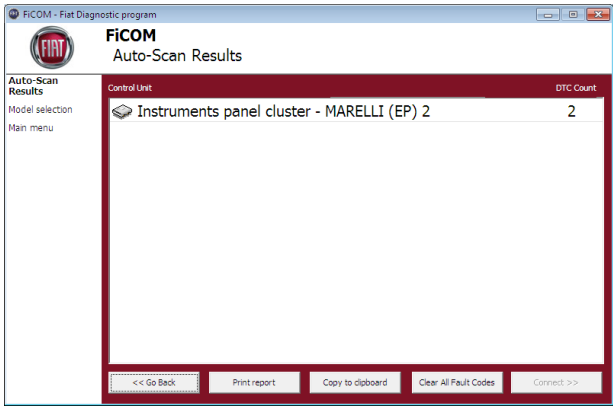


If control unit was recognized, you can use diagnostic functions.
In other case, you should study chapter Unrecognized Control Unit before using diagnostic functions.

6.2 Auto-scan

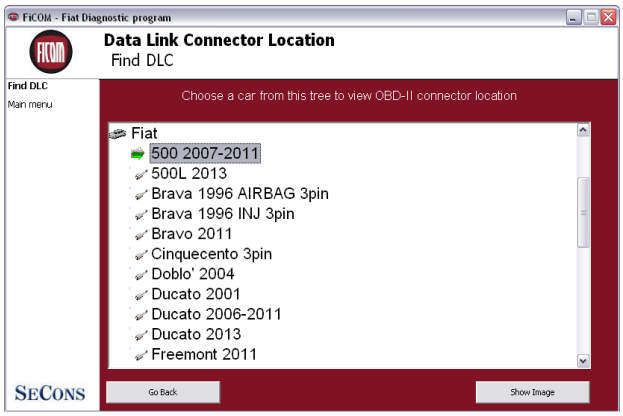
This function scans for all known ECUs and shows the list of ECUs present in vehicle along with number of diagnostic trouble codes.

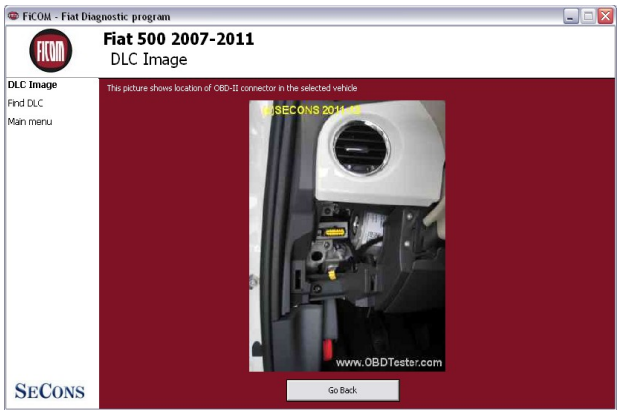
It is necessary to select exact vehicle type before starting the auto-scan.



6.3 OBD-II Connector Location

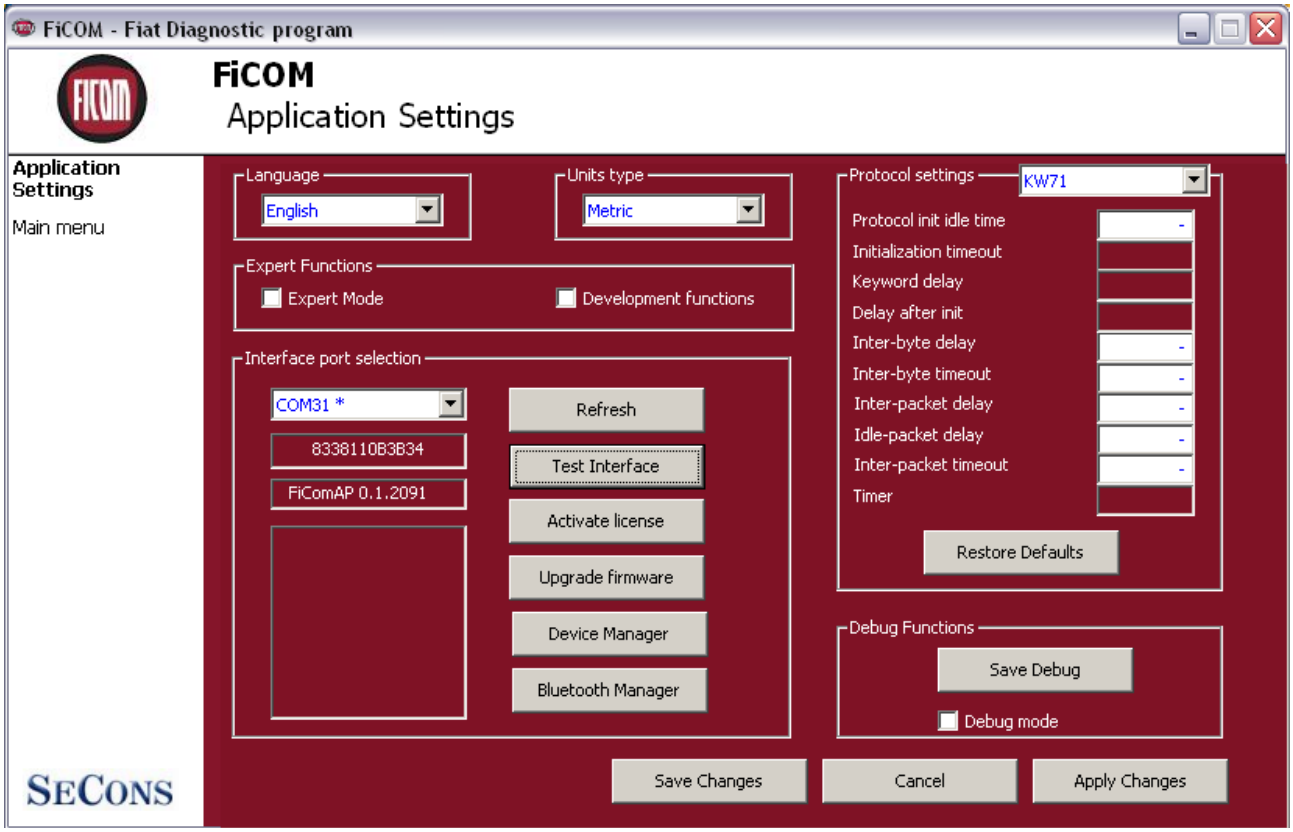
Using this database you can check a location of OBD-II connector in the vehicle. The database is constantly updated.





6.4 Settings

All functions in settings are described below.



Language

Choose language of FiCOM user interface in the drop down menu.

Units type

You can choose metric or imperial unit system for measured values.

Expert functions

Development functions - Enables additional functions under development. This setting is not saved before program exit and will be cleared on every application start. Do not enable this option unless requested by SECONS support staff as these functions may be dangerous to use without proper instructions.

Expert mode – Enables additional functions such as special coding functions or additional configuration options. These functions are intended for experienced technicians and are provided on "AS IS" basis, with absolutely no guarantee. It is highly recommended to leave this option unchecked. This mode also eliminates some warning messages and questions.

Interface port selection

Refresh - this button refreshes COM port selection drop down list. Correct COM port number should be already chosen after connecting diagnostic interface via USB to PC and clicking on *Refresh* button. If not, choose correct COM port number from the list. It is needed in order to perform successful interface test.

Test interface – before each use of program, please test proper function of your connected interface by clicking this button. After successful test, you can see a serial number of your interface displayed below the COM port field, then firmware version and information about active licenses.

Activate license – this button is used for activating new license/s to use the program or special functions. Internet connection is required. Standard license is already activated for all interfaces before purchase.

Upgrade firmware – use this button to upgrade firmware in your diagnostic interface every time after installing the latest software version (available at www.obdtester.com/downloads). Do not disconnect your interface during upgrading the firmware.

Device Manager – is used to finding out correct COM port number, or to reinstall drivers. Your device appears as "ELM-USB Interface (COMx)" under "Ports (COM & LPT)".

Bluetooth Manager – is a preparation to upcoming bluetooth feature. The button is currently inactive.

Protocol settings

You can set various timings for each communication protocol. This is advanced feature used for example when problems occur with connection to control unit caused by slower ECU response and the like.

Restore Defaults – this button restores all modified timings of all protocols to default values.

Changing protocol settings is not required before normal use of the program. You will be asked to make changes by our tech. support when solving your issue at support@secons.com if necessary.

Debug functions

By clicking on **Save Debug** button, you can capture the latest data from elapsed communication between control unit and program into one file. Providing this file is required only by our technical support. Based on these data, we are able to monitor the whole process of performed operation and its correctness.

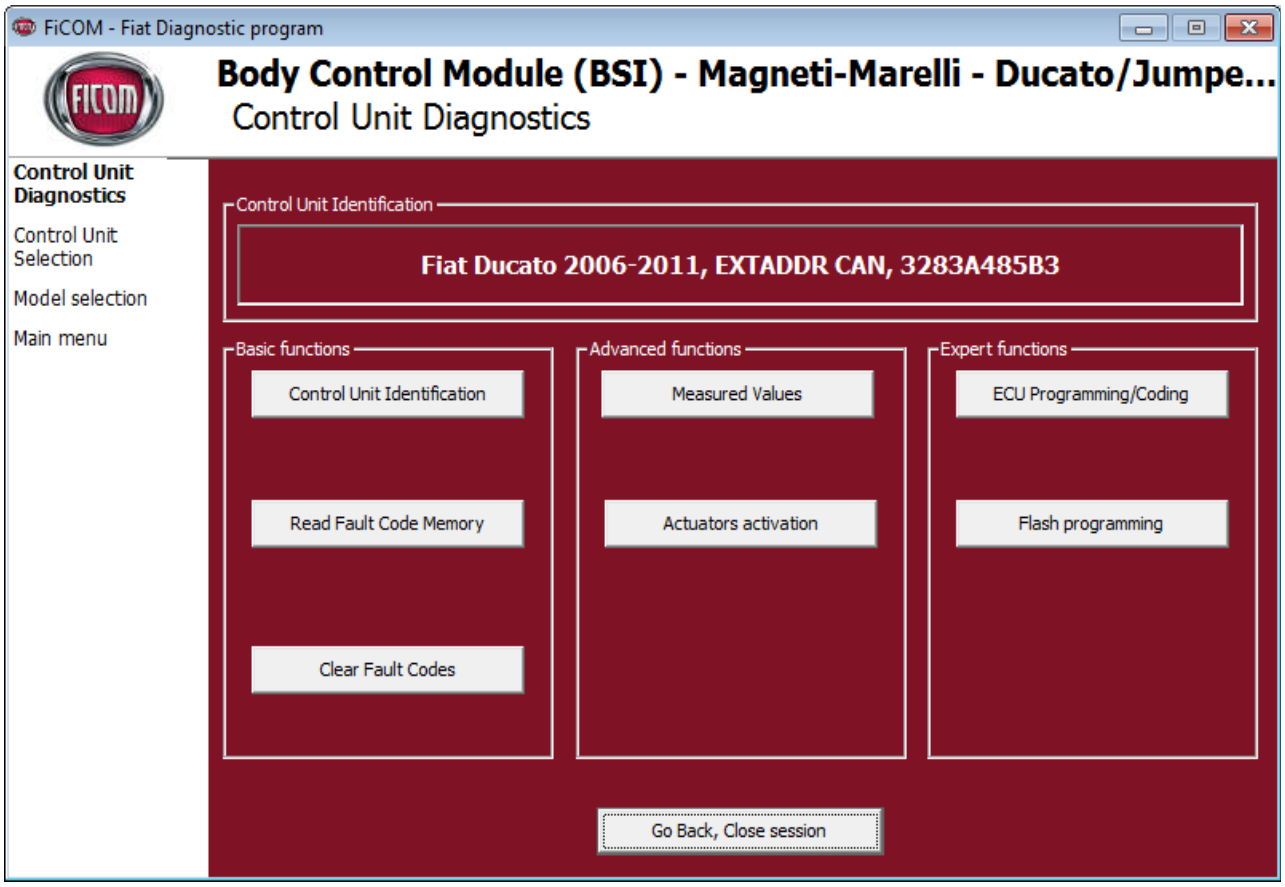
Use of debug function is important for successful resolution of any program failure or verifying its causes. For more information on how to proceed, please read the following chapter #8.Reporting bugs and improvement requests.

6.5 About

After clicking on "About" button, you can read a license agreement or check application version.

7 Diagnostic functions

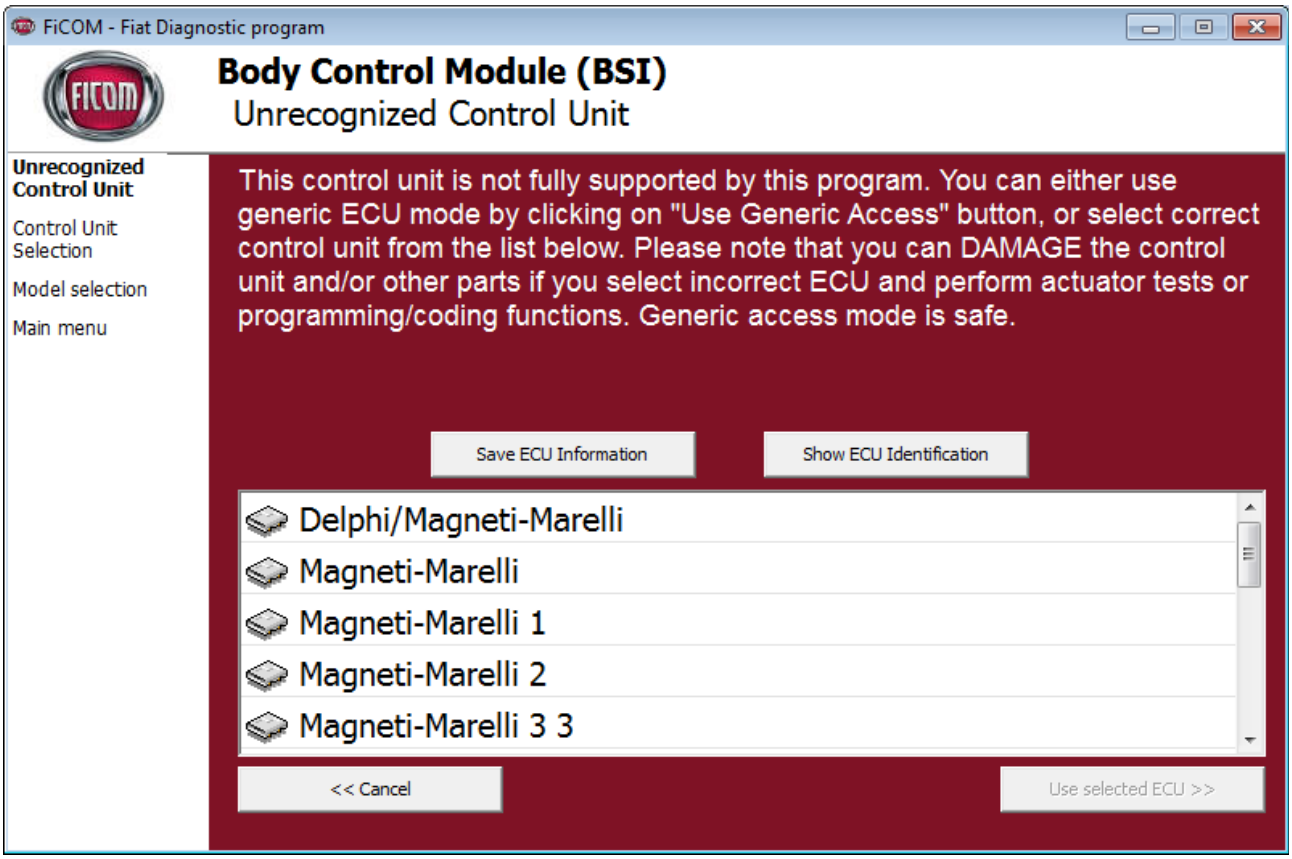
After connecting to chosen control unit, the following diagnostic menu is displayed. The diagnostic menu is divided into three parts. Basic functions, Advance functions and Expert functions.



If control unit was recognized, the diagnostic menu will be available immediately and you can use diagnostic functions. If control unit wasn't identified uniquely, you should study next chapter Unrecognized Control Unit before using diagnostic functions.

7.1 Unrecognized Control Unit

Fiat control units in exceptional cases do not return unique identification or FiCOM may not correctly identify the control unit. In such case it is necessary to choose right type of control unit from list. In this situation, you can either use generic ECU mode by clicking on *Use Generic Access* button, or select correct control unit from the list below. In Generic Access you can only read identification or work with fault code memory.


FiCOM - Fiat Diagnostic program
Body Control Module (BSI)
Unrecognized Control Unit
Unrecognized Control Unit
Control Unit Selection
Model selection
Main menu
This control unit is not fully supported by this program. You can either use generic ECU mode by clicking on "Use Generic Access" button, or select correct control unit from the list below. Please note that you can DAMAGE the control unit and/or other parts if you select incorrect ECU and perform actuator tests or programming/coding functions. Generic access mode is safe.
Save ECU Information
Show ECU Identification
Delphi/Magneti-Marelli
Magneti-Marelli
Magneti-Marelli 1
Magneti-Marelli 2
Magneti-Marelli 3 3
<< Cancel
Use selected ECU >>

You can get more information about ECU by clicking on *Show ECU Identification* button.

- It is important to choose correct ECU for proper display of measured values.
- If you make a mistake in identification, you shouldn't perform any of programming functions.

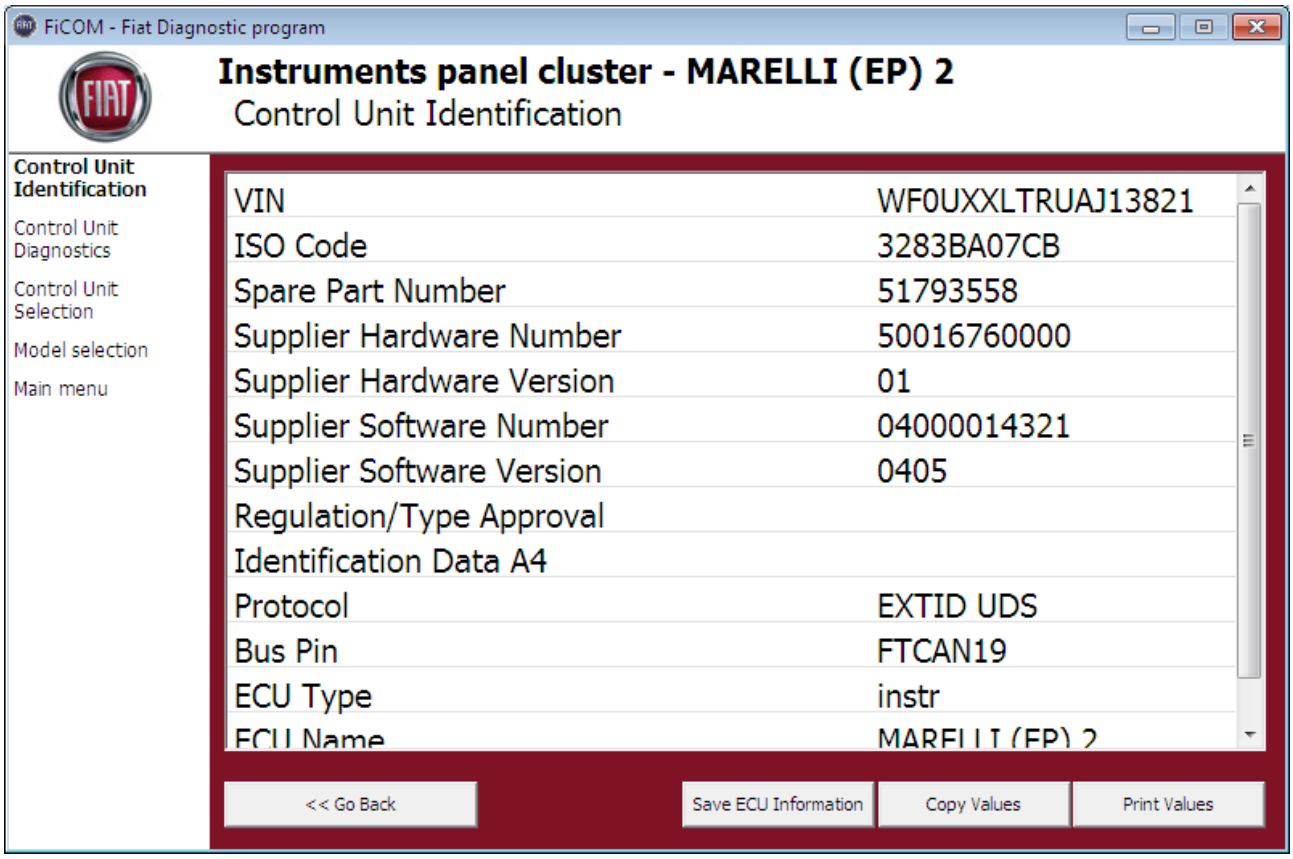
Save ECU Information function make possible to save all development information about ECU to a file. We asking users to send these files to us. We would like to add support to these ECUs to next version of FiCOM.

7.2 Control Unit Identification

This function can display only identification data accessed by ECU, for example:

- Identification data
- ECU part number
- serial number

Incomplete identification are very common mainly for older ECUs that do not provide full part number or VIN code.



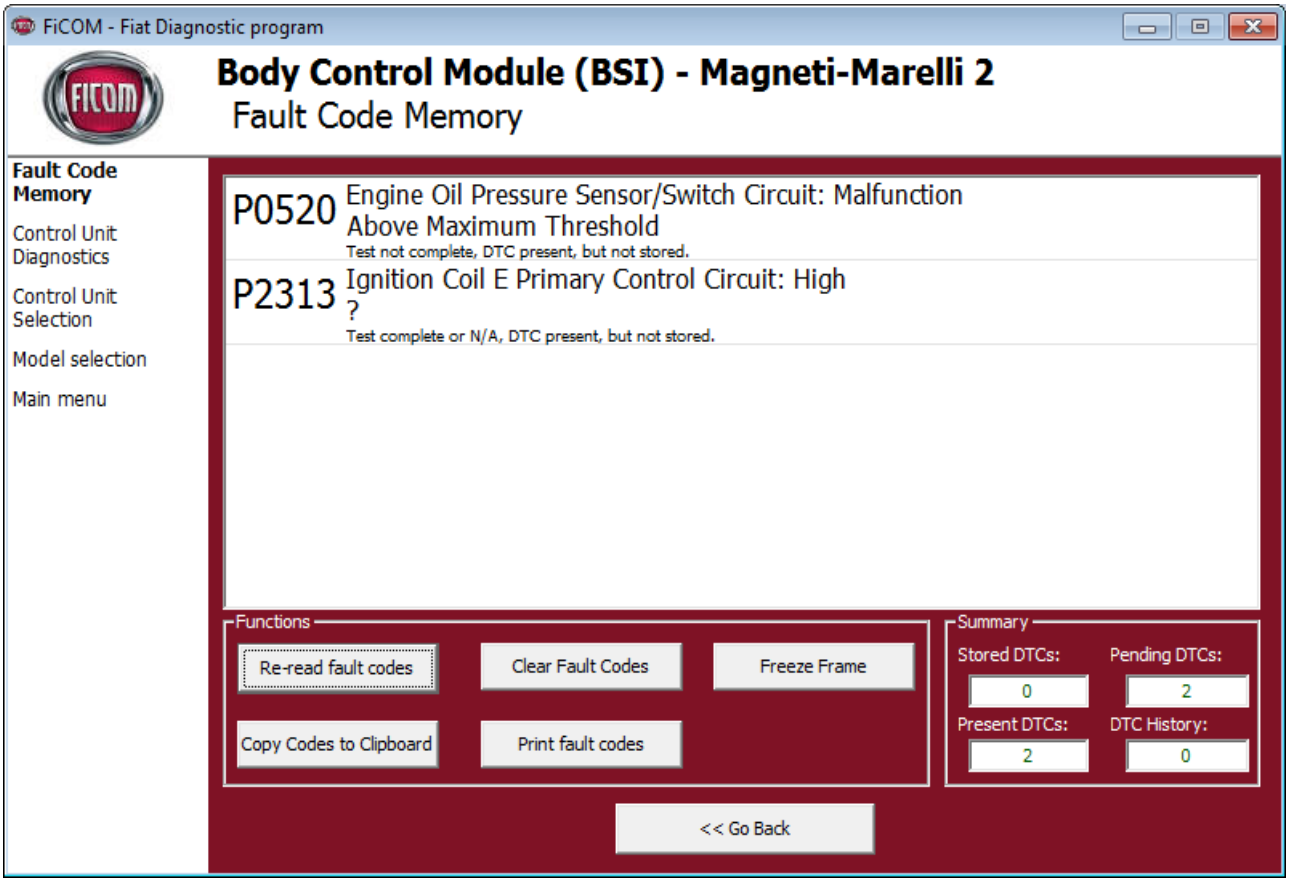
Each ECU should contain valid VIN code.

You can print identification by clicking on *Print Values* button or you can copy to clipboard by clicking on *Copy Values* button.

Save ECU Information button is used to save "ECU snapshot" of tested control unit, as mentioned in chapter "#7.1.Unrecognized Control Unit" or "#8.Reporting bugs and improvement requests".

7.3 Read fault code memory

This function allows to read and display diagnostic trouble codes saved in memory of control unit (so called CMDTC).



7.4 Clear Fault Codes

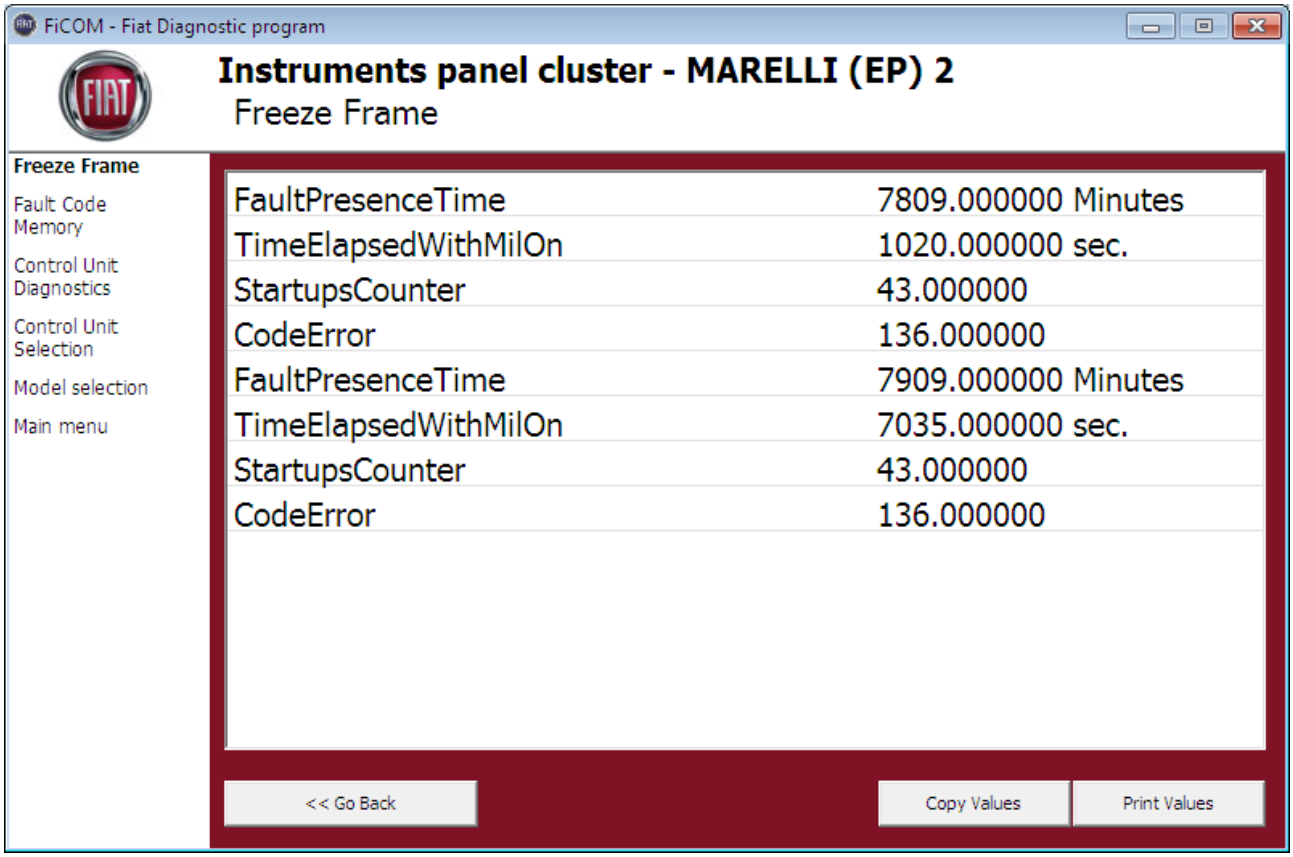
This function clears fault codes stored in ECU memory.

Clearing memory isn't guaranteed. Fault codes might appear again or under some conditions isn't possible to clear fault codes at all. It is possible that in the presence of some faults the control unit doesn't allow to clear fault codes or fault is in no time written back to memory.

It is recommended to read memory by clicking on *Re-read fault codes* button again.

7.5 Freeze Frame

Freeze Frame function combines the reading fault codes and displaying measured values function. It displays the measured parameters assigned to fault code.

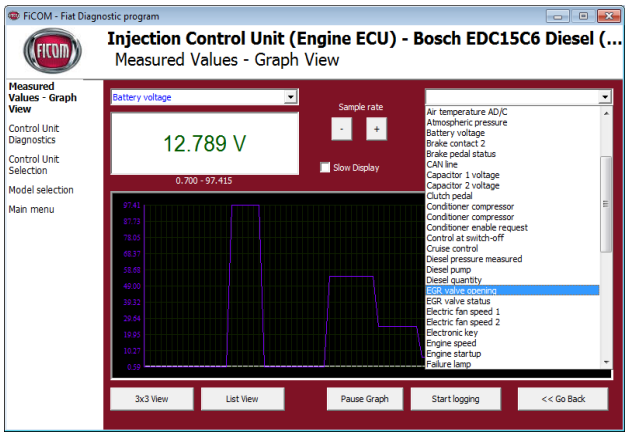


7.6 Measured values

7.6.1 Graph display

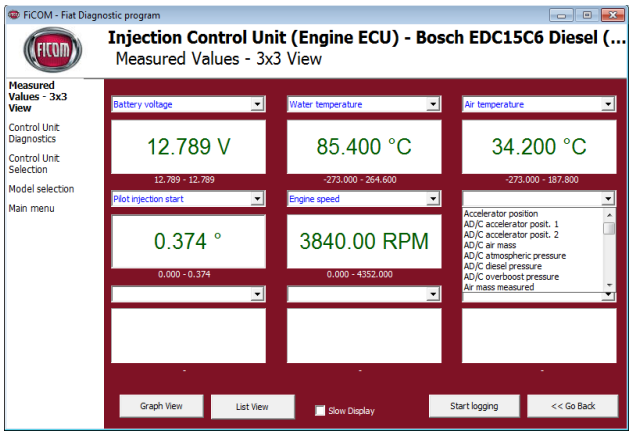
This function displays two measured values (also known as live data or sensor values) simultaneously. Measured parameters can be chosen from selectors at the top of the window.

Buttons + and – allow to accelerate or decelerate speed of graph.



7.6.2 Display 3x3

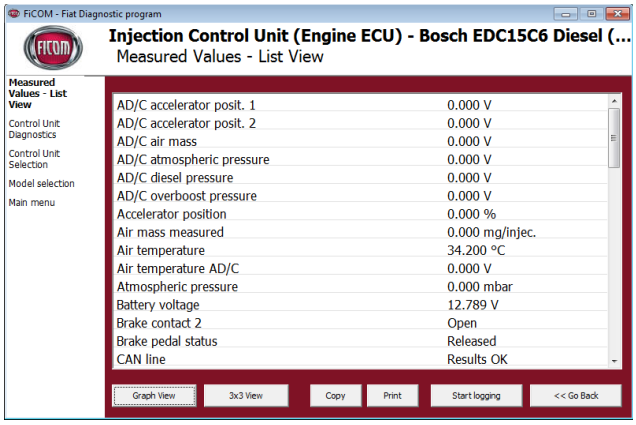
For measuring 9 value simultaneously, click on *3x3 View* button.



7.6.3 Display list

To measure all available values simultaneously, click on *List view* button.

Please note values means slower refresh rate.

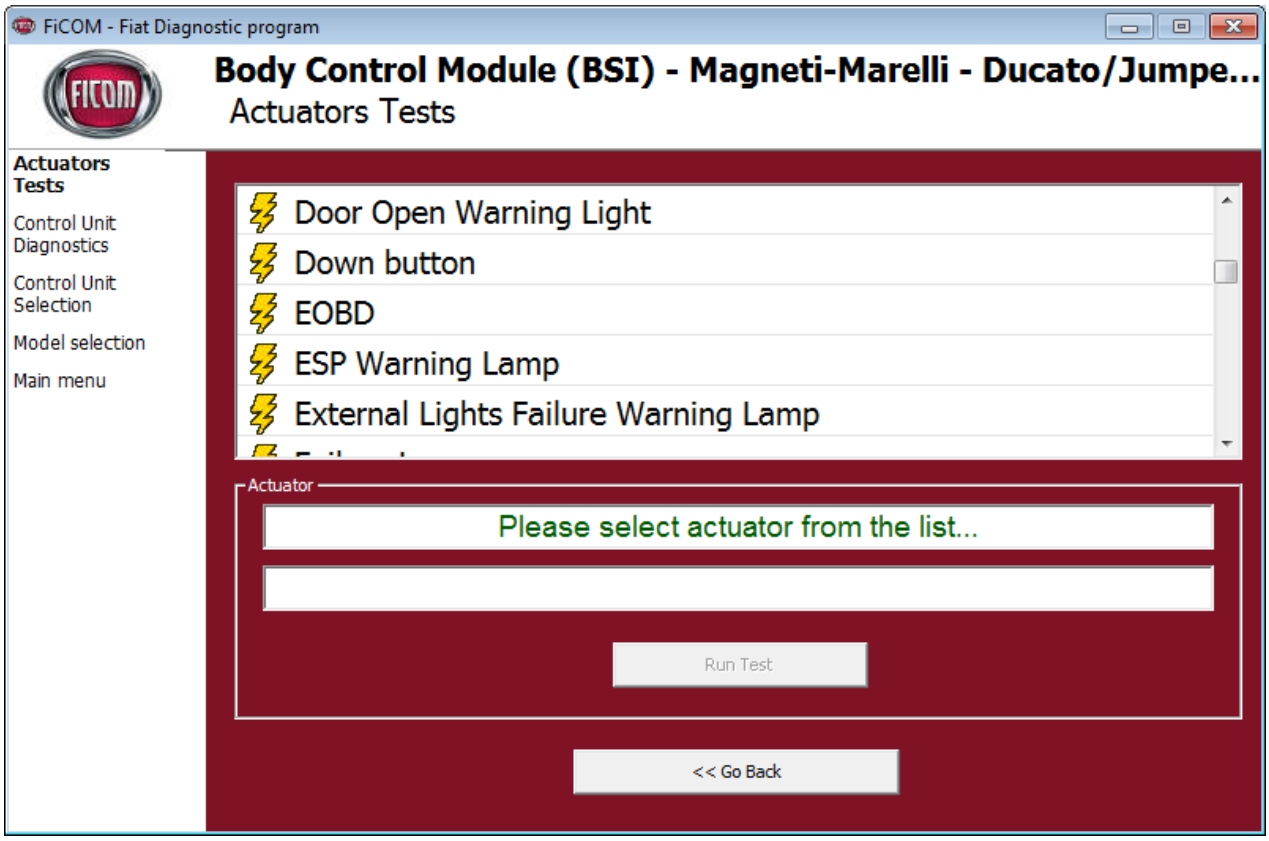

FiCOM - Fiat Diagnostic program
Injection Control Unit (Engine ECU) - Bosch EDC15C6 Diesel (...
Measured Values - List View
Measured Values - List View
Control Unit Diagnostics
Control Unit Selection
Model selection
Main menu
AD/C accelerator posit. 1 0.000 V
AD/C accelerator posit. 2 0.000 V
AD/C air mass 0.000 V
AD/C atmospheric pressure 0.000 V
AD/C diesel pressure 0.000 V
AD/C overboost pressure 0.000 V
Accelerator position 0.000 %
Air mass measured 0.000 mg/injec.
Air temperature 34.200 °C
Air temperature AD/C 0.000 V
Atmospheric pressure 0.000 mbar
Battery voltage 12.789 V
Brake contact 2 Open
Brake pedal status Released
CAN line Results OK
Graph View
3x3 View
Copy
Print
Start logging
<< Go Back

7.6.4 Save to log

Measured values can be saved/logged to a file by clicking on *Start logging* button. The log file is standard csv file and it is compatible with VagScope or can be imported to Microsoft Excel or OpenOffice Calc.

7.7 Actuators activation

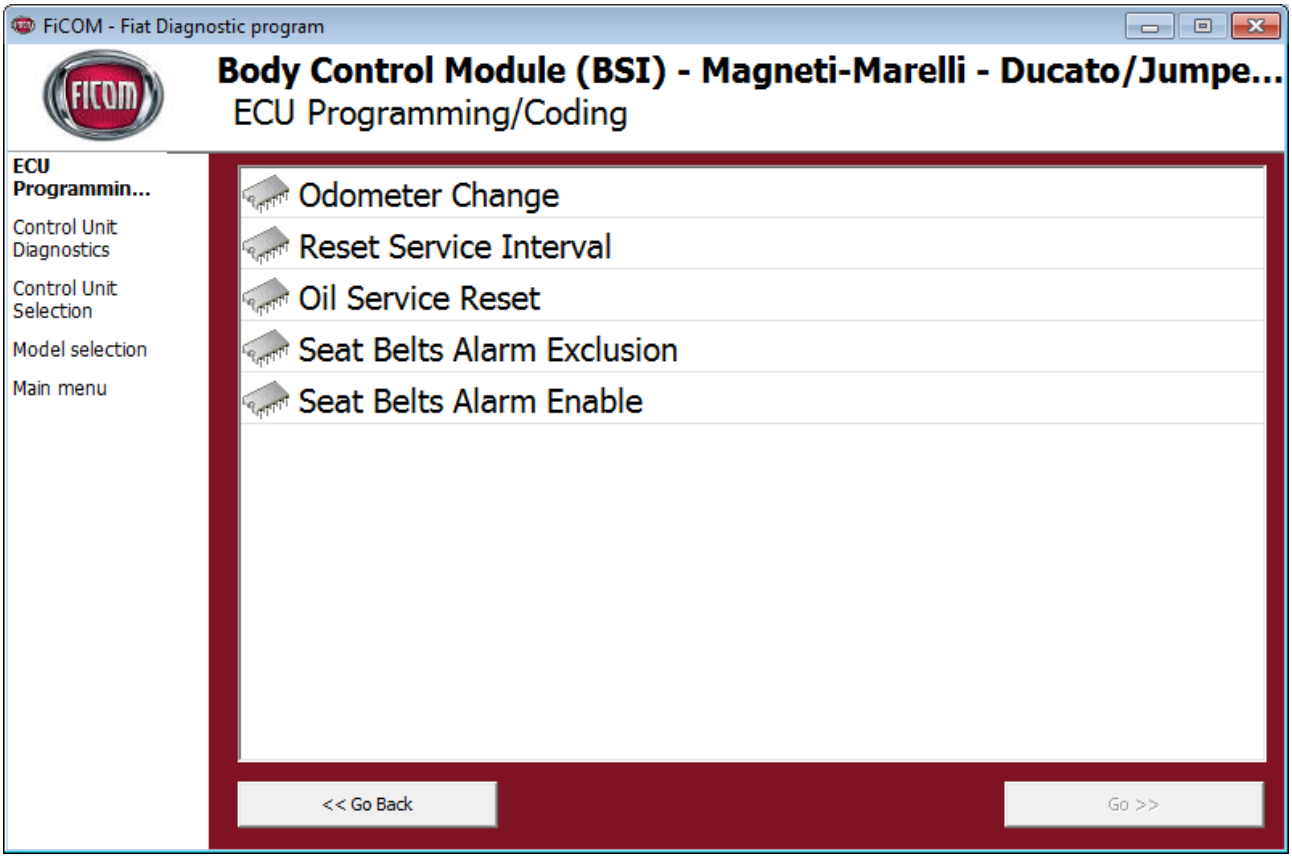
This function can activate actuators and perform some actuators actions.



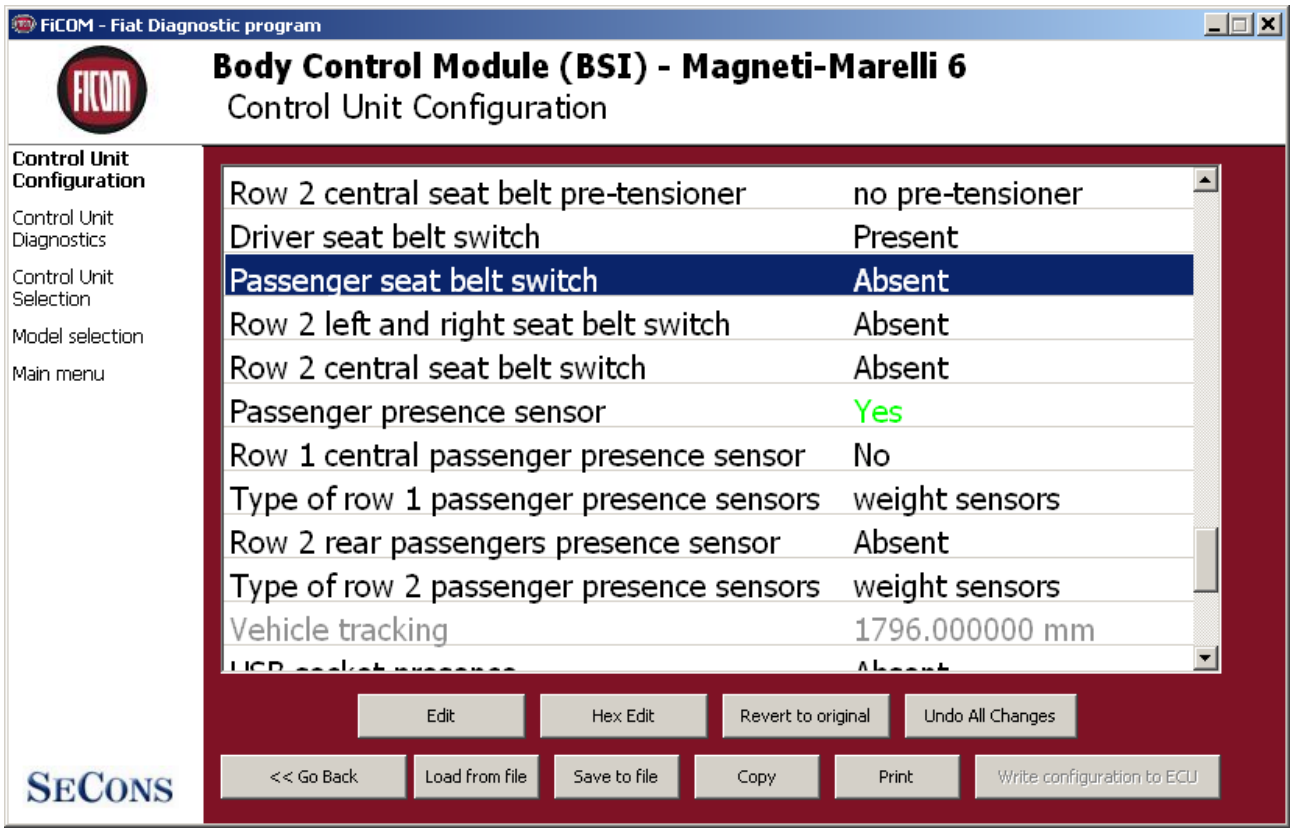
7.8 ECU Programming/Coding functions

This feature allows to run coding functions. Note that some of the coding functions can not be run when the engine is running and vice versa (some coding functions can not be run unless the engine is running).

More information about coding functions is available at www.obdtester.com/downloads



7.9 ECU Configuration



8 Reporting bugs and improvement requests

Our customers can take advantage of our full technical support for free. In case you have any difficulties with using FiCOM, do not hesitate to contact us directly at **support@secons.com** or through your distributor.

Please read carefully this chapter in order to provide us with all information so as we can resolve your problem quickly.

Note:

Before sending support request for failing operation, please make sure you have met all conditions required for the operation (e.g. you are entering correct data, correct engine temperature for DPF regeneration, correct number of keys for engine start, etc).

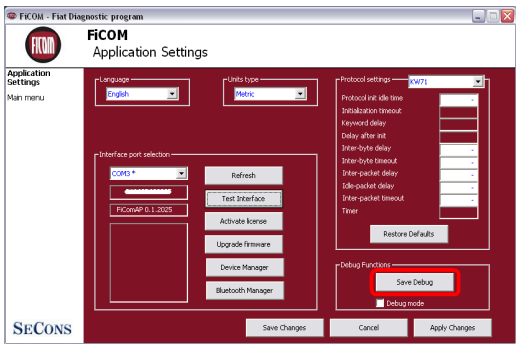
In case of communication issues we recommend to check diagnostic plug connection and retry procedure at least once, connection problems may result in erratic communication issues.

In case you encounter to failure of any program functions (e.g. fault codes reading/clearing, coding functions, actuator tests, connecting to ECU …), or you're missing some function or some function does not work sufficiently, please prepare the following data in your email before sending your request to our technical support:

1. Detailed description of failure or your improvement request
2. Vehicle description - VIN code, model, manufacture year, engine type
3. Attach **Debug Log** (in case that required function doesn't work properly). This file captures data from the latest communication between program and ECU, so we can detect failure causes.
4. Attach **Snapshot** of tested ECU – this file contains important information about tested control unit**.**

---

*8.1 How to create **Debug Log***



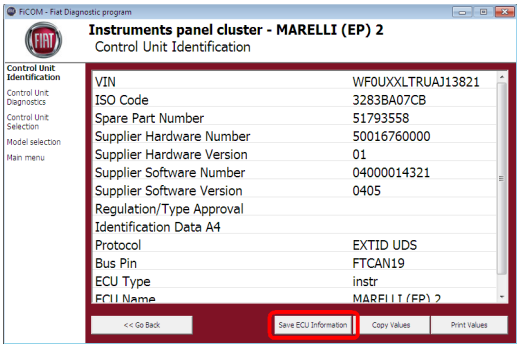
It is necessary to perform operation that is not working correctly first. Once failure occurs, go back directly to settings in main menu (do not close the program). Click on "Save Debug" button. Name and save the file into well known directory in your computer.

Enable "Debug mode" check box only at our special request.

This function is used to tell program enable special functions in diagnostics interface and to log more data than required for normal operation.

*8.2 How to create ecu **Snapshot***

After connection to related control unit, click on “Control Unit Identification”. In the following window click on “Save ECU Information” button. Choose a directory to save the file and confirm. Saving may take a few minutes.



Please send all support requests along with required data attached to support@secons.com. Your case will be assigned with unique ticket number in order to communicate efficiently with you.

Also feel free to contact us with any suggestions for improvements in the software on the same e-mail address. Your feedback is greatly appreciated.

9 Known problems

- Missing support for EDC15C7 injector classification coding will be available as a free update.